agri-fax Alberta

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Varietal Description of Condor Two-row Hull-less Spring Barley

Origin and breeding

Condor, tested as H75197013*N and TR 607, was developed at the Alberta Agriculture Crop Research Centre in Lacombe, Alberta, from the cross A.S.A./TR 410 (Centennial/Fergus) made in 1975. The F_1 generation was grown in a growth chamber in the winter of 1975-76, and F_3, F_5 and F_7 generations were grown in Mexico in winter nurseries. The F_3 and F_4 were grown as modified bulk populations. The F_5 to F_8 were grown as head rows with selection for yield, hectolitre weight, protein content, maturity and straw strength. Later generations were grown in head rows with undesirable rows being discarded. In 1987, 97 lines were bulked to form breeder seed.

Varietal characteristics

Plant characteristics

Coleoptile color: green

Juvenile growth: intermediate

Leaves: medium green; long; medium width; glabrous lower leaf with purplish sheath

Flag leaf: medium green; narrow; medium length; intermediate attitude; slightly waxy sheath; purplish auricles

Stem: grass green; medium thickness (4 mm); 5 nodes; slightly waxy just below the nodes; exserted 0-3 cm from flag leaf at maturity; modified closed collar; snaky neck

Plant height: medium; 3 cm shorter than Abee

Heading date: midseason

Maturity: 2 days earlier than Abee

Tolerance to drought: fair

Resistance to lodging: good

Resistance to straw breaking: good

Resistance to neck breaking: good

Resistance to shattering: good

Disease reaction: resistant to stem rust (*Puccinia graminis*); moderately resistant to common root rot (*Helminthosporium sativum*); susceptible to loose and surface-borne smuts (*Ustilago nuda*, *U. hordei* and *U. nigra*), scald (*Rhynchosporium secalis*), spot and net forms of net blotch (*Helminthosporium teres*) and Septoria (*S. passerinii*).

Spike characteristics

Type: two-row

Shape: strap; long; lax; no overlapping lateral kernels

Attitude: nodding

Lemma: glabrous; long rough awns with purplish tips; few barbs on the lateral veins; veins purplish before maturity

Glumes: 1/2 the length of the lemma; completely covered with long hairs; rough awns equal to the length of the glumes, with purple tips; empty glumes awnletted

Stigma hairs: many

Rachis: segments slightly tapered; numerous short hairs on edges; first internode curved

Kernel characteristics

Type: hull-less

Size: side; medium length

Rachilla: short with long hairs; no abnormal rachillas

Aleurone color: white to amber

Basal marking: transverse crease

Protein content: high

Quality: feed

Performance

Condor is adapted to western prairie barley producing areas. Compared to Scout, the only other hull-less tow-row barley variety registered at the time Condor was being developed, Condor is higher yielding, 1 to 2 days earlier, 2 to 3 kg/hl higher in test weight, threshes more easily, has shorter and stronger straw and is higher in protein and energy. Except for slightly better scald resistance than in other two-row varieties, Condor's disease resistance is generally not better than that of susceptible checks.

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Maintenance of breeder seed
Alberta Agriculture, Field Crops Branch

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Recommended by
Western Canada Barley and Oat Recommending Committee

Table 1. Grain Yield (100 kg/ha) of Condor and check varieties, Western Co-operative Two-Row Barley Test, 1985-87*

	Black Soil							Black & Grey Soils					
Stations	**Bran**	**Glen**	**Inhe**	**Melf**	**Noba**	**Port**	**Mean**	**Beav**	**Calm**	**Fove**	**Laco**	**Prov**	**Mean**
Years	**3**	**3**	**2**	**1**	**2**	**2**	**13**	**3**	**1**	**2**	**3**	**3**	**12**
Variety													
Hannchen	58.1	50.0	45.6	45.1	39.6	44.7	47.2	42.3	45.2	35.5	61.9	46.6	46.3
Abee	71.4	61.7	61.1	61.7	47.9	57.0	60.1	48.7	63.8	45.9	67.1	56.1	56.3
Condor	60.5	49.8	44.3	44.9	33.7	45.5	46.4	40.7	57.1	35.8	50.6	43.9	45.6

	Brown Soil										Overall
Stations	**Acme**	**Elro**	**Irri**	**Leth**	**Regn**	**Sask**	**Scot**	**Swft**	**Watr**	**Mean**	**Mean**
Years	**2**	**2**	**2**	**3**	**2**	**3**	**2**	**2**	**3**	**21**	**46**
Variety											
Hannchen	56.2	44.1	50.1	48.4	50.3	51.0	48.8	39.1	52.9	49.0	47.8
Abee	64.4	48.3	60.2	59.5	62.0	59.3	58.3	41.1	55.3	56.5	57.5
Condor	50.9	35.6	49.2	40.3	41.1	49.3	42.1	30.7	48.8	44.2	45.3

*Locations: Brandon, Glenlea, Indian Head, Melfort, North Battleford, Portage La Prairie, Beaverlodge, Calmar, Ft. Vermilion, Lacombe, Provost, Acme, Elrose, Irricana, Lethbridge, Regina, Saskatoon, Scott, Swift Current, Watrous

Table 2. Agronomic performance of Condor and check varieties, Western Co-operative Two-row Barley Test, 1985-1987

Heading (days)					**Maturity (days)**				**Plant height (cm)**			
Soil Zone	**Black**	**Brown**	**Bl/Gr**	**Mean**	**Black**	**Brown**	**Bl/Gr**	**Mean**	**Black**	**Brown**	**Bl/Gr**	**Mean**
Station Yrs	**10**	**14**	**4**	**28**	**12**	**12**	**9**	**33**	**11**	**17**	**10**	**38**
Variety												
Hannchen	58.1	57.0	57.1	57.4	91.3	94.5	100.0	95.0	89.2	80.2	75.3	81.8
Abee	57.5	56.1	56.4	56.7	92.3	95.4	98.1	95.1	79.0	70.0	64.9	71.5
Condor	58.2	56.1	56.6	57.0	90.1	94.3	98.1	93.9	74.8	68.0	65.6	69.5

	Resis. to lodging (1-9)**				**Weight/hectolitre (kg)**				**Weight/1000 kernels (g)**			
Soil Zone	**Black**	**Brown**	**Bl/Gr**	**Mean**	**Black**	**Brown**	**Bl/Gr**	**Mean**	**Black**	**Brown**	**Bl/Gr**	**Mean**
Station Yrs	**3**	**5**	**3**	**17**	**10**	**15**	**11**	**35**	**9**	**15**	**11**	**35**
Variety												
Hannchen	6.5	7.0	5.0	6.4	65.9	65.8	62.7	64.8	40.5	40.0	39.8	40.1
Abee	4.0	5.3	1.3	4.0	67.5	65.7	64.8	66.0	44.5	43.1	44.5	44.0
Condor	2.8	3.4	1.1	2.7	77.4	76.7	74.4	76.2	36.4	38.9	39.2	38.3

*Locations: Brandon, Glenlea, Indian Head, Melfort, North Battleford, Portage La Prairie, Beaverlodge, Calmar, Ft. Vermilion, Lacombe, Provost, Acme, Elrose, Irricana, Lethbridge, Regina, Saskatoon, Scott, Swift Current, Watrous
**1 = best resistance

Table 3. Performance of Condor and check varieties in three tests in the brown soils and three tests in the black soils of Alberta, Alberta Regional Trials, 1987

	Brown Soils				Black Soils				Overall
Yield:	**Test 1**	**Test 2**	**Test 3**	**Average**	**Test 4**	**Test 5**	**Test 6**	**Average**	**Average**
(% of Abee)									
Abee	100	100	100	100	100	100	100	100	100
Scout	70	51	65	61.4	80	79	77	79.0	70.2
Condor	92	81	100	90.3	90	93	100	94.5	92.4
Maturity (days):									
Abee	115	114	112	113.7	110	111	113	111.3	112.5
Scout	113	112	113	112.7	112	113	112	112.3	112.5
Condor	112	112	111	111.7	111	110	109	110.0	110.9
Test Weight (kg/hl)									
Abee	63.5	64.4	64.8	64.2	65.2	64.2	64.0	64.6	64.4
Scout	73.0	72.0	74.0	73.0	71.0	71.7	71.9	71.5	72.3
Condor	74.7	74.6	75.0	74.8	73.8	74.4	74.8	74.3	74.6
Plant Height (cm)									
Abee	97	95	89	93.7	85	88	92	88.3	91.0
Scout	100	101	103	101.3	92	98	103	97.7	99.5
Condor	92	91	88	90.3	77	81	88	82.0	88.2

Locations: Brown Soils: Trochu, Drumheller, Provost

Black Soils: Lacombe, Olds, Calmar

Table 4. Grain composition of Condor and Scout, University of Alberta, 1986

	Protein (%)	Energy (kcal/kg)
Scout	12.1	4011
Condor	15.3	3992

Table 5. Disease reactions of Condor and check varieties, Western Co-operative Two-Row Barley Test, 1987

	Common Root Root (0-100)[2]			Ustilago (%)[3]			Stem Rust (0-100)[2]	Powdery Mildew (0-100)[2]
Variety	**Sask**	**Scott**	**nuda**	**hordei**	**nigra**	**Glen**	**Guelph**	
Ellice	83	27	56	46	18	10	MR[4]	0
Hannchen	61	15	60	27	28	60	MR-MS	20
Abee	85	9	48	9	4	50	MR-MS	30
Condor	77	16	58	23	5	30	MR-MS	0

	Net Blotch (1-10)[2]			Scald	Septoria	Net Blotch (1-9)[2]	Net Blotch (0-9)[2]	Leaf Disease Scald (1-4)[2]	Leaf Disease Scald (1-9)[2]
Variety	**102[5]**	**858[5]**	**875[5]**	**837[5]**	**692[5]**	**Shel**	**Char**	**Bran**	**Beav**
Ellice	–	9	7	MS[4]	S[4]	6.5	3.0	0.50	3.5
Mannchen	10	10	7	S	S	7	3.0	0.75	2.3
Abee	9	10	8	S	S	8	4.7	0.50	3.0
Condor	8	10	7	MS	S	8	4.7	0.75	3.0

[1] Locations as indicated: Saskatoon, Scott, Glenlea, Guelph, Shelbrook, Charlottetown, Brandon, Beaverlodge

[2] Rating Scales: Visual estimates where lowest number = resistant, highest number = susceptible

[3] Percentage of infected heads; 20 is considered susceptible

[4] S = Susceptible; MS = Moderately Susceptible; MR = Moderately Resistant; R = Resistant

[5] Isolate Number

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